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Paul Kuruk

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Performance of Electric Utilities in Developing Countries: The Ghanaian and Nigerian Experience

PAUL KURUK*

I. INTRODUCTION

In the middle of the twentieth century, when independent African states embarked on industrialization programs as a way of building up their economies,¹ it was crystal clear to policy makers that to succeed in their objective, an efficient electric industry needed to be implemented.² While in some states the efforts to improve the electricity production capabilities took the form of expanding the already existing thermal generating facilities bequeathed by the colonial powers, in others, the efforts were geared towards developing alternative sources of energy such as hydro-power.³ The expectation was that ultimately the electric industry would be able to undertake a flexible expansion program to meet the expected increases in demand for electricity resulting from the urbanization taking place in those countries.⁴

Electric utilities in anglophone Africa, following British tradition, were established as public corporations endowed with a measure of autonomy in their day-to-day administration but with some mini-

* J.S.D. Candidate, Stanford Law School; M.A., Temple University, 1986; LL.M., Temple University School of Law, 1985; LL.B., University of Ghana, 1981. I am grateful to Professor John Barton of Stanford Law School for his useful comments on an earlier draft.

1. K. NKUMAH, *DARK DAYS IN GHANA* 76-77 (1972); T. KILLICK, *DEVELOPMENT ECONOMICS IN ACTION: A STUDY OF ECONOMIC POLICIES IN GHANA* 45 (1978).

2. As Kwame Nkrumah, then President of Ghana, remarked in a broadcast to the nation in 1961:

All industries of any major significance require, as a basic facility, a large and reliable source of power. In fact, the industrialisation of Europe, of America, of Canada, of Russia and of other countries, emerged as a result of the invention of sources of power of hitherto undreamt of size. Newer nations such as ours, which are determined by every possible means to catch up in industrial strength, must have electricity in abundance before they can expect any large-scale industrial advance. Electricity is the basis of industrialization.

D. HART, *THE VOLTA RIVER PROJECT* 40 (1980).

3. LAGOS FEDERAL MINISTRY OF INFORMATION, *KAINJI DAM AND THE PEOPLE* 11 (1969).

4. *Id.*

munum government control to ensure accountability. This Article examines electricity regulation in two African countries, Ghana and Nigeria, with a view to determining how far the current regulatory framework has promoted efficiency within the industry. Section Two provides background information on the development of the electricity sector in these countries, and continues to describe the current structure of the industry in terms of its overall production of electricity and ability to satisfy the growing demand. Section Three begins the outline of the regulatory framework by tracing the basis of government regulation of the industry, showing the close resemblance it has with its counterpart in Britain, and then outlines the scope of the authority of the public entities responsible for electricity generation. Managerial difficulties, low generating capacity, lack of capital for expansion, and a faulty rate structure are discussed in Section Four as current problems of the industry to which solutions are proposed in the final section.

II. HISTORICAL BACKGROUND AND STRUCTURE OF THE ELECTRIC INDUSTRY

A. Nigeria

The first power station was built in Nigeria in 1896 by the Public Works Department of the Government of Southern Nigeria.⁵ Consisting initially of two thirty kilowatt hour generating sets, it provided just enough power to light the Government House and its most immediate vicinity from 6:00 p.m. to 11:00 p.m. daily.⁶ From this modest beginning, the power system was gradually expanded to meet increasing demand, so that by 1940, the major towns in Nigeria had been wired.⁷ Seeing the benefits of electricity, the Native Administrations, which were separate from the Government of Southern Nigeria,⁸ lost no time in promoting electricity expansion in their respective areas, and lavishly funded the construction of electricity production and dis-

5. M. MANAFA, *ELECTRICITY DEVELOPMENT IN NIGERIA 1896-1972* 16 (1979).

6. *Id.*

7. *Id.* at 32.

8. In the early twentieth century, direct British colonial administration was only exerted in the Southern part of the Colony. For the remaining parts of the Colony, British influence was by and large indirect and exercised, if at all, by a policy of indirect rule which recognized rule of such areas by local chiefs. The local government bodies based upon these traditional political institutions were known as the Native Administrations. For an outline of the evolution of native administrations, see T. ELIAS, *NIGERIA, THE DEVELOPMENT OF ITS LAWS AND CONSTITUTION* 1-41 (1967); J. NSARKOH, *LOCAL GOVERNMENT IN GHANA* 1-18 (1964).

tribution networks staffed by government engineers. Electricity generation did not, however, remain a government monopoly, as a number of private undertakings sprang up to provide power for some industrial needs. The largest of these, the Nigerian Electricity Supply Corporation Ltd. (NESCO), was formed mainly to support the electric power demands of the mining industry.⁹ Other non-governmental undertakings created at this time included the Cameroon Development Corporation and the African Timber & Plywood Company. It became the practice of these private undertakings to sell electricity to the Public Works Department for distribution to the public in the outlying areas.¹⁰

The Public Works Department's obligations were simply too numerous to enable it to adequately supervise the expansion of the electric supply in Nigeria. Its duties included supervision of electricity generation and supply as well as various civil engineering projects of the Government.¹¹ As a result, in 1946 a new government department, Nigerian Government Undertakings, began supervision of electricity generation and supply.¹² Although this provided temporary relief, in the long run it proved to be an unsatisfactory solution given the obvious limitations of developing electricity under a government department.¹³ By way of reform, the Electricity Corporation of Nigeria (ECN) was set up in 1950¹⁴ with power to generate, distribute and sell electricity in a general commercial capacity.¹⁵ To provide for an integrated national network of electricity supply, the ECN took over all the existing government stations.¹⁶ In 1952, the ECN took over four stations which had been operated by the Native Administra-

9. M. MANAFA, *supra* note 5, at 27.

10. The NESCO supply for instance was distributed mainly in the towns of Jos, Vom and Bukuru, while the power from the Cameroon Development Corporation was distributed in the Sapele Township. *See id.* at 24.

11. *Id.* at 32.

12. *Id.*

13. Government departments suffer from problems of red tape and bureaucracy as they usually come under excessive government control in the form of legislative reviews, ministerial orders, civil service regulations and financial audits. *See* R. JAIN, *MANAGEMENT OF STATE ENTERPRISES IN INDIA: A STUDY OF THE ORGANIZATION AND MANAGEMENT OF PUBLIC ENTERPRISES IN INDIAN SETTING* 43-44 (1967). Besides, civil servants are notorious for their lack of expertise in running specialized industries such as the electric industry. *See* W. THORNHILL, *THE NATIONALISED INDUSTRIES: AN INTRODUCTION* 20 (1968).

14. Electricity Corporation of Nigeria Ordinance, 2 Laws of the Federation of Nigeria and Lagos, ch. 58 (1959) [hereinafter *Electricity Corporation of Nigeria Ordinance*].

15. *Id.* § 16(2)(a).

16. By this time, electricity generating stations had been opened in such places as Kaduna, Zaria, Yola, Maiduguri, Sokoto, Jos, Vom and Bukuru. Others were found at Enugu,

tions.¹⁷ Although private undertakings continued to operate, they did so under the regulation of the ECN.¹⁸

Electricity was thermally generated through the early 1950s. Beginning in the late 1950s, however, the government seriously considered the development of hydroelectric power as a source of cheap and abundant energy supply. In 1962, following the recommendations of a feasibility study,¹⁹ the government constructed a dam at Kainji, responsibility for which was placed in the hands of the Niger Dams Authority.²⁰ The project was carried out at an estimated cost of eighty-seven million dollars, 40% of which came from the Nigerian Government, the rest being comprised of loans from the World Bank, Italy, United Kingdom, Netherlands, the United States, and Canada.²¹ With the creation of the Niger Dams Authority, there were now in existence two governmental agencies with overlapping and, to a large extent, conflicting duties and functions. The resultant problems of coordination contributed to power failures and delays in electric expansion, as well as severe operating deficits.²² To resolve the situation, the government in 1972 merged the two agencies into one body called the National Electric Power Authority (NEPA).²³

The annual production of electricity in Nigeria has risen steadily: from 2,084 million kilowatt hours in 1972, production is now over 8,800 million kilowatt hours.²⁴ Hydro-power is presently the main

Port Harcourt, Calaber, Victoria, Aba and Abakaliki. See M. MANAFA, *supra* note 5, at 34-35.

17. *Id.* at 35.

18. Electricity Corporation of Nigeria Ordinance, *supra* note 14, § 20.

19. The engineers who provided consulting services on Nigeria's hydro-electric potential were from the Dutch engineering firm of Netherlands Engineering Consultants (NEDECO) and the British firm of Balfour Beatty & Co. Ltd. FEDERAL MINISTRY OF INFORMATION, *supra* note 3, at 11.

20. Niger Dams Act, § 2(d) (1962). Printed in ANNUAL VOLUME OF LAWS OF THE FEDERAL REPUBLIC OF NIGERIA 1962, at A 95 (1962).

21. The respective contributions were the World Bank, \$34,465,000; Italy, \$9,416,000; United Kingdom, \$5,000,000; Netherlands, \$1,000,000; United States, \$997,000; Canada, \$583,000. See Niger Dams Authority, Kainji Hydro-Electric Development (Lagos, Federal Ministry of Information, 1969); Electricity Corporation of Nigeria, Niger Dams Project, (Prepared by Netherlands Engineering Consultants and Balfour Beatty & Co.; The Hague, 1961).

22. W. TIMS, NIGERIA: OPTIONS FOR LONG-TERM DEVELOPMENT 196 (1974).

23. National Electric Power Authority Decree § 5 (1972). Printed in ANNUAL VOLUME OF LAWS OF THE FEDERAL REPUBLIC OF NIGERIA 1972, at A 463 (1973) (hereinafter NEPA Decree).

24. See U.N. ECONOMIC COMMISSION FOR AFRICA, SURVEY OF ECONOMIC AND SOCIAL CONDITIONS IN AFRICA, 1983-84, at 78 (1985), and U.N. DEP'T OF INT'L ECONOMIC & SOCIAL AFFAIRS, 1984 ENERGY STATISTICS YEARBOOK, at 36 (1984) [hereinafter 1984 ENERGY STATISTICS YEARBOOK]; U.N., ENERGY BALANCES AND ELECTRICITY PROFILES 1984, at

source of electricity for NEPA, but additional electricity is obtained through thermal generation, the burning of gas and coal, and purchases from private sources.²⁵ The 1984 electricity production per capita habitant was ninety-five kilowatt hours.²⁶ However, this figure should not be taken as an accurate reflection of the availability of electricity since supply is concentrated mainly in the major cities of the country, with rather limited supply in parts of the country's interior, and no supply at all in a majority of the country. For example, Lagos, the former capital, has consistently received a third of the total supply of electricity in Nigeria.²⁷

B. Ghana

The growth of the electric industry in Ghana (formerly the Gold Coast) followed basically the same pattern as that in Nigeria. Since its introduction into the country at the turn of the century, the development and expansion of electricity formed one of the primary objectives of the colonial government. The Electric Supply Ordinance of 1920²⁸ gave the Governor of the Gold Coast extensive powers to regulate the supply of electricity in the colony as well as in Ashanti and the Northern Territories,²⁹ a responsibility which for a long time was effected under the Electricity Division of the Public Works Department. Expansion of electricity production was rather gradual, and by 1961 the Electricity Division was operating diesel generating stations in only twenty-two towns in the country.³⁰ Like the Nigerian experi-

459, U.N. Doc. ST/ESA/STAT/SER.W/3, U.N. Sales No. E.86.xvii.14 (1986) [hereinafter 1984 ENERGY BALANCES AND ELECTRICITY PROFILES].

25. A breakdown of electricity production shows that in 1979, 49.6% of NEPA's electricity was generated from Kainji, while 47% and 15% were obtained from gas and coal respectively. Two point eight percent of the production in the same year came from twenty-nine diesel stations in various parts of the country. NEPA supplemented 0.47% of its needs in the same year with purchases from the Nigerian Electricity Supply Corporation Ltd and the African Timber and Plywood Company. Federal Office of Statistics, Annual Abstracts of Statistics 1981, 90-91 (Lagos Federal Office of Statistics, 1981).

26. 1984 ENERGY STATISTICS YEARBOOK, *supra* note 24, at 414. The figures for 1981, 1982, and 1983 were 93 million kilowatt hours, 98 million kilowatt hours, and 98 million kilowatt hours, respectively. *Id.*

27. M. MANAFA, *supra* note 5, at 61.

28. Electricity Supply Ordinance, 1920, 2 Laws of the Gold Coast, ch. 65 (1954).

29. In the early part of the century, Ashanti and the Northern Territories, part of present day Ghana, were administered by the British as separate jurisdictions. For a description of the nature of early colonial administration in the country, see T. ELIAS, GHANA AND SIERRA LEONE: THE DEVELOPMENT OF THEIR LAWS AND CONSTITUTIONS 3-41 (1962).

30. Ghana Electricity Department, Annual Report 1960/61 at 4 (Accra: Ministry of Information and Broadcasting, 1961).

ence, it was found that running the electric industry as part of a government department had its problems, and so to promote a faster development of the industry, the Electricity Corporation of Ghana (ECG) was created in 1967.³¹ Private generation was also encouraged, but this was, by and large, undertaken to satisfy the industrial needs of the mining sector.³² Private generation had become so important that in 1964 it accounted for nearly half of the total electricity generated in the country.³³

Convinced of the importance of an expanded electric supply to its ambitious program of industrialization,³⁴ the government of Ghana at the time of independence in 1957 set about developing the country's hydro-electric potential. Even though surveys conducted since 1915 were optimistic about the feasibility of hydro-electric generation,³⁵ the colonial government had failed to respond enthusiastically to the idea.³⁶ However, after receiving the necessary financial commitment from the World Bank and the United States government,³⁷ the Ghana government set up the Volta River Authority (VRA) to construct a dam at Akosombo³⁸ at a cost of some seventy million dollars.³⁹ To meet projected increases in demand, the government constructed a second dam at Kpong in the 1970s.⁴⁰

Hydro-electricity accounts for about 99% of Ghana's electricity

31. Electricity Corporation of Ghana Decree, 1967, N.L.C.D. 125 (1967) [hereinafter ECG Decree].

32. N. GUYOL, *THE WORLD ELECTRIC POWER INDUSTRY* 192 (1969).

33. GHANA COMMERCIAL BANK: Q. ECON. REV., Oct.-Dec. 1979, at 3.

34. D. HART, *supra* note 2, at 40; T. KILLICK, *supra* note 1, at 34-43.

35. A discussion of early efforts to construct a dam in Ghana can be found in J. MOXON, *VOLTA, MAN'S GREATEST LAKE* 1-107 (1969). See also R. Steel, *The Volta Dam: Its Prospects and Problems*, in *DAMS IN AFRICA* (W. Warren & N. Rubin ed. 1968).

36. The British Government backed off from a serious consideration of the project citing its inability to meet the heavy finances required. J. MOXON, *supra* note 35, at 84-85.

37. Obtaining money for the project was not easy. The high level of international diplomacy that characterized the protracted negotiations leading to the approval of loans from international institutions are described in R. GRAHAM, *THE ALUMINUM INDUSTRY AND THE THIRD WORLD* 157-197 (1982).

38. Volta River Development Act 1961, 46 (1961) [hereinafter VRDA].

39. Steel, *supra* note 35, at 67.

40. See L. CATALANO, *DIRECTORY OF ELECTRIC UTILITIES IN DEVELOPING COUNTRIES* (1986). The VRA provided 58.75% of this amount to cover local costs. Other financiers of the project include the Kuwaiti Fund for Arab Economic Development, Saudi Development Fund, Arab Bank for Economic Development in Africa, Canadian International Development Agency, World Bank, European Investment Bank, and the European Development Fund. See West Africa, Nov. 14, 1977, at 2309.

output of 5382 million kilowatt hours.⁴¹ In the 1970s, electricity production increased, but has since taken a plunge⁴² with production per capita falling to as low as 113 kilowatt hours.⁴³ The supply of electricity in Ghana, like the Nigerian situation, is concentrated in only the major cities, which among themselves hold a minority of the country's population.⁴⁴ It is estimated that only 20% of the country's population is presently served with electricity supply.⁴⁵ The main consumers of the VRA's hydro-electricity are Valco,⁴⁶ the ECG, the Mines, Akosombo Textiles Factory, Akosombo Township, and the Republic of Benin. In 1982, 62% of its total production went to Valco, while 21%, 5%, and 11% went to the ECG, the Mines, and the Republic of Benin respectively.⁴⁷ The ECG, which is responsible

41. GHANA COMMERCIAL BANK, Q. ECON. REV., July-Sept. 1979; 1984 ENERGY BALANCES AND ELECTRICITY PROFILES, *supra* note 24, at 394.

42. 1984 ENERGY BALANCES AND ELECTRIC PROFILES, *supra* note 24, at 435.

43. 1984 ENERGY STATISTICS YEARBOOK, *supra* note 24, at 413. Figures for the other years were 1981 = 415 million kilowatt hours; 1982 = 365 million kilowatt hours; 1983 = 173 million kilowatt hours. *Id.*

44. For example, Accra, the capital, and its outlying suburbs, with 10% of the country's total population has often received about half of the electricity devoted to public use. ACCRA, CENTRAL BUREAU OF STATISTICS: STATISTICAL YEARBOOK 1969/70 50 (1973).

45. GHANA COMMERCIAL BANK, 2 Q. ECON. REV., July-Sept. 1979, at 4.

46. Valco stands for the Volta Aluminum Company, a consortium of American aluminum companies operating an aluminum smelter in Ghana. The history behind the formation of the company is described in J. MOXON, *supra* note 35.

47. VOLTA RIVER AUTHORITY, 22ND ANNUAL REPORT AND ACCOUNTS 22 (1983). Its power sales revenue for each class of consumer for the same year was Valco = 23%; Electricity Corporation of Ghana = 45%; Mines = 13%; and the Republic of Benin = 17%. *Id.* at 37. It strikes one as somewhat odd that Valco which received 62% of the total electricity generated by the VRA should account for only 23% of its sales revenue. Part of this can be explained by the special rates available to Valco as a base-load consumer, rates which could not be modified under the terms of a stabilization clause in a 1962 contract between the VRA and Valco. D. HART, *supra* note 2, at 66. Arts. 12-15 of the power contract between the VRA and Valco, are reprinted in GOVERNMENT OF GHANA, THE VOLTA RIVER PROJECT: STATEMENT BY THE GOVERNMENT OF GHANA 72-75 (1961). As compared to the rates paid by other major industrial users, the rates paid by Valco were relatively low, and so in the early 1980s, there was general pressure on Valco to agree to a rate increase. Casely-Hayford & Sims, *Renegotiating the Price and Availability of Energy*, in ESSAYS FROM THE GHANA VALCO-ESSAYS RENEGOTIATIONS 15, 23-24 (F. Tsikata ed. 1986). The controversy about Valco's rates are discussed in Owusu, *The Valco Debate*, West Africa, Nov. 1, 1982 at 2826; *Letter to the Editor*, West Africa, Sept. 1, 1980 at 1647; Correspondent, *Imperialism and the Volta Dam: Independence and Multinationals*, West Africa, Mar. 31, 1980, at 571; Correspondent, *VRA Electricity Tariff to Valco*, The Legon Observer, Apr. 11, 1980, at 123; Rejoinder: *VRA Electricity Tariff to Valco*, The Legon Observer, June 27, 1980, at 207. The low rates then paid by Valco were not only unfair to Ghanaian consumers, but also made it difficult to attract new investments in the country. For instance, Japanese, Iranian and Hungarian investors could not proceed with their plans to establish aluminum production facilities in the country because insufficient electricity was available. West Africa, Nov. 1, 1982, at 2828. With an agreement

for power distribution throughout Ghana, produces electricity from forty-one provincial diesel stations in the country.⁴⁸ Its average production of forty million kilowatt hours⁴⁹ constitutes only 5% of the ECG's requirements, the rest of its needs being supplemented by purchases from the VRA. In 1981, it served 210,000 customers, a figure that represents 12% of the country's households.⁵⁰

With hydro-electric power generation in the hands of the VRA, and thermal generation remaining the charge of the ECG, there are in effect two bodies responsible for the generation and supply of electricity in Ghana. The current situation has led to an inevitable duplication of efforts in the industry. As is to be expected, there have been calls for a merger of the two bodies to ensure a more effective organization and management of electric supply in the country.⁵¹

III. THE REGULATORY FRAMEWORK

A. *Public Enterprise: A Colonial Legacy*

Given their common colonial heritage, it is not surprising that the electric industry in Ghana and Nigeria should be modelled closely after British practice.⁵² On this account, an examination of the British model would be helpful in identifying the rationale for and nature of the present organization of the electricity industry in the two countries of study. After the World War II, the British government nationalized the electric industry along with other industries,⁵³ as a way of restructuring its economy.⁵⁴ Nationalization of these sectors was desired for several reasons: the preemption of excesses that could be indulged in by natural monopolies such as the electric industry,⁵⁵ the

in 1985 on new rates, the situation has now improved. GHANA COMMERCIAL BANK, Q. ECON. REV., JAN.-MAR. 1985, AT 15.

48. Electricity Corporation of Ghana, Annual Report 1982, (1982).

49. 1984 ENERGY STATISTICS YEARBOOK, *supra* note 24, at 386.

50. INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT, GHANA, POLICIES AND PROGRAMS FOR ADJUSTMENT 67 (1964).

51. West Africa, Oct. 13, 1986, at 2185.

52. J. NELLIS, PUBLIC ENTERPRISES IN SUB-SAHARAN AFRICA 12-13 (1986).

53. These include the Coal, Transportation, Iron and Steel, Bank of England, Cable and Wireless, as well as Civil Aviation industries.

54. For a concise description of the various forces leading to nationalization in Britain, see generally N. CHESTER, THE NATIONALISATION OF BRITISH INDUSTRY 1945-51 (1975); R. KELF-COHEN, TWENTY YEARS OF NATIONALISATION: THE BRITISH EXPERIENCE (1969); E. BARRY, NATIONALISATION IN BRITISH POLITICS: THE HISTORICAL BACKGROUND (1965).

55. In these monopolies, power was concentrated in just a few hands, and could be used to jeopardize essential services, or even be pitted against the government. See W. THORNHILL, *supra* note 13, at 7.

desire to facilitate planning of the British economy,⁵⁶ the promotion of greater efficiency in the industries affected,⁵⁷ as well as strategic defense purposes.⁵⁸ Also, the chance to inject much-needed investment unavailable under private enterprise,⁵⁹ several community welfare concerns,⁶⁰ and the redistribution of income and wealth⁶¹ furnished further support for the move towards nationalization.

After nationalization, the options available to the government for restructuring the industries included reorganizing them as departments of state, semi-independent bodies, local authorities, joint boards, mixed joint-stock companies, or public corporations.⁶² For a number of industries, including the electric industry, the government preferred to set them up as public corporations. As public corporations these industries were established as legal entities charged with the duty of carrying out specific governmental functions in the na-

56. Public ownership of nationalized industries ensured control over resources which is crucial for effective planning. D. COOMBES, *STATE ENTERPRISE: BUSINESS OR POLITICS?* 21 (1971).

57. With private ownership, there were too many operating units of inefficient size unwilling to merge for fear that they would lose their individual identities. Apart from this structural problem, private industries would also be inefficiently run, where the workers do not put in their best because they do not share in the profits. Nationalization could reverse these trends by adopting an appropriate structure for the industry, and encouraging employee industry since the employees will now be working for a broader community instead of the shareholders. P. CURWEN, *PUBLIC ENTERPRISE: A MODERN APPROACH* 32 (1986).

58. It was considered unwise for the government to be strategically dependent upon external supplies of services necessary for the conduct of war or defense, such as atomic energy. W. FRIEDMANN, *THE STATE AND THE RULE OF LAW IN A MIXED ECONOMY* 54 (1971).

59. Many of the industries were in very poor shape after the war and required large investments, but private enterprise was not altogether enthusiastic in providing this because of the low profitability of the industries. See R. KELF-COHEN, *BRITISH NATIONALISATION 1945-1973* 5 (1973); W. FRIEDMANN, *supra* note 58, at 54.

60. The welfare of the community would be promoted by the provision of basic necessities, such as power at sufficient levels to the general community at the lowest possible price. J. REDWOOD, *PUBLIC ENTERPRISE IN CRISIS: THE FUTURE OF NATIONALIZED INDUSTRIES* 2 (1980). Without nationalization, this objective could not be achieved since private enterprise, driven by its desire for profits, normally charges a higher price to those who are relatively costly to supply. P. CURWEN, *supra* note 57, at 34.

61. The government felt that too much wealth and power had been concentrated in the hands of the few individuals in the big private sector. Thus, it was hoped nationalization would lead to the transference of power to the general community, and enable it to benefit from the ownership of the means of production. Such benefits would be reflected in uniform pricing schedules, equivalent wage payments in comparable industries, and the holding down of the prices of goods and services consumed by the poor. NATIONAL ECONOMIC DEVELOPMENT OFFICE, *A STUDY OF UK NATIONALIZED INDUSTRIES: THEIR ROLE IN THE ECONOMY AND CONTROL IN THE FUTURE* 76 (1976).

62. W. THORNHILL, *supra* note 13, at 15-16.

tional interest.⁶³ While subjected to some degree of control by the executive, they were at the same time independent entities not directly responsible to the legislature in their day-to-day administration.⁶⁴ Compared to civil servants working for the government, the staff of the public corporations generally enjoy superior conditions of tenure, remuneration, selection, and management. Public corporations typically have their finances separate from those of the government,⁶⁵ and unlike joint-stock private enterprises, have no shareholders.⁶⁶

The public corporate form was chosen mainly because it guaranteed autonomy while still ensuring some form of government control. Autonomy was essential to free the managers of the corporations from the timidity and red tape of the civil service.⁶⁷ Such flexibility of the managers, coupled with their superior managerial expertise, was thought to augur well for the efficient entrepreneurial development of the large industrial concerns.⁶⁸ Also, the absence of too much parliamentary surveillance left the public corporations free to go about the day-to-day administration further enhancing the productive growth of the industries.⁶⁹ In this sense, adoption of the public corporate form could be seen as an attempt to bring an industry within the ambit of public control while still leaving it free to pursue its business according to normal commercial principles.

In 1947 the British government set up the British Electricity Authority,⁷⁰ later renamed the Central Electricity Generating Board (CEGB), as the public corporation responsible for the electric industry.⁷¹ The CEGB which owns and operates the power stations and main transmission lines in the country, sells the power produced from the national grid to twelve Area Boards for distribution to customers in England, Wales and Scotland.⁷² Government control over the

63. See generally Drake, *The Public Corporation as an Organization of Government Policy*, in GOVERNMENT ENTERPRISE 26 (F. Friedmann & J. Garner ed. 1970).

64. Garner, *Public Corporations in the United Kingdom*, in GOVERNMENT ENTERPRISE 5 (F. Friedmann & J. Garner ed. 1970).

65. W. THORNHILL, *supra* note 13, at 22.

66. *Id.* at 23.

67. Drake, *supra* note 63, at 28.

68. R. POZEN, LEGAL CHOICES FOR STATE ENTERPRISES IN THE THIRD WORLD 31-32 (1976).

69. *Id.* at 28.

70. Electricity Act, 1947.

71. R. PRYKE, PUBLIC ENTERPRISE IN PRACTICE: THE BRITISH EXPERIENCE OF NATIONALIZATION OVER TWO DECADES 11 (1971).

72. R. PRYKE, THE NATIONALIZED INDUSTRIES: POLICIES AND PERFORMANCE SINCE 1968 22 (1981).

CEGB, like other public corporations, is exercised under statutory provisions⁷³ which give the responsible Minister powers of appointment and dismissal of managers of its governing board. These statutory provisions also subject specific functions of the board to ministerial approval.⁷⁴

B. African Electric Utilities as Public Corporations

During the colonial era, the electric industry in Ghana and Nigeria came under a department of the colonial government,⁷⁵ influenced largely by British practice where public ownership of the industry was the favored mode. Even after independence, the governments of these two countries continued to operate the industry through publicly owned entities for obvious reasons. The electric industry, as an important part of the national infrastructure,⁷⁶ formed the basis for the industrialization of those countries. Socially it was necessary if large-scale urbanization was to take place.⁷⁷ Given the industry's monopolistic nature, and the importance of the services it provided, the respective governments deemed it necessary for strict regulation. Like the British government, a major concern of African governments was the exploitation of consumers that could result from leaving the industry to private enterprise.⁷⁸ The post-colonial governments left the industry in the public domain as the private sector was unable to supply the heavy capital investment needed,⁷⁹ or if at all able, was unwilling to do so in an industry where the first years following the investment were often marked by heavy financial losses.⁸⁰ In addition to fears that the private enterprise could not successfully run the electric industry, the respective governments believed that control of the

73. See the Electricity Act, 1947.

74. For instance, its pricing policies, or plans to raise loans, may be subject to such ministerial consent. See generally Robson, *Ministerial Control of the Nationalised Industries*, in GOVERNMENT ENTERPRISE 79 (W. Friedmann & J. Garner ed. 1970).

75. M. MANAFA, *supra* note 5, at 32.

76. Robson, *Public Enterprise as a Function of Economic and Social Development*, 44 ANNALS PUB. & COOPERATIVE ECON. 313, 315 (1973).

77. *Id.*

78. Private enterprise usually charges very high prices, and so government involvement would make rates and services available at the lowest possible prices. See Schloss, *Public Enterprise as a Form of Business Enterprise: Role, Purpose and Performance*, 48 ANNALS PUB. & COOPERATIVE ECON. 299, 302 (1977).

79. Ramanadham, *Public Enterprise in the Developing Countries: The Development Content*, in PUBLIC ENTERPRISE AND THE DEVELOPING WORLD 4 (V. Ramanadham ed. 1984).

80. Otigba, *Non-tax Revenues: Principles and Significance in Nigerian States*, 48 ANNALS PUB. & COOPERATIVE ECON. 183, 185 (1977).

industry would enable them to improve the infrastructural development of their countries, as well as promote national and regional planning, thereby leading to a higher standard of living.⁸¹ In Nigeria, where a federal system of government exists, the prevention of regional rivalries was a further motive for government involvement.⁸²

The ECG and VRA in Ghana, and NEPA in Nigeria are the main bodies responsible for the electric industry in the two countries.⁸³ In establishing these public corporations, Ghana and Nigeria hoped that the corporations' relative independence would make them effective instruments of economic and social development during the post-colonial period in which both countries were experiencing rapid changes.⁸⁴ As commercial enterprises, freed from the limitations of the civil service,⁸⁵ they were also considered very potent government agencies for reconstruction and economic growth,⁸⁶ since they could combine the efficiency and effectiveness of private enterprise in their daily activities with a degree of responsiveness to government controls in their policies.⁸⁷ Incidentally, the public corporate form also suited the objectives of some foreign investors who, out of the desire to insulate their loan recipients from the vagaries of national politics, usually required it as a pre-condition of their loans.⁸⁸ In 1967 for example, the Government of Ghana, in response to a World Bank request, changed the Electricity Division, then a government department, into a public corporation in order to attract funding from the international financial institution.⁸⁹

Management of the electric utilities in both countries is entrusted to a Board of Directors usually comprising a government appointee as Chairman, leading officials from the ministries responsible for the industry, as well as some specialists in the relevant areas of finance,

81. Robson, *supra* note 76, at 316; Otigba, *supra* note 80, at 186.

82. Blunt, *State Enterprise in Nigeria and Ghana: The End of an Era*, 69 AFR. AFF. 27, 27 (1970).

83. See generally ECG Decree, *supra* note 31, and NEPA Decree, *supra* note 23.

84. Otigba, *supra* note 80, at 185; see also Turkson, *The History of Public Corporations*, in ESSAYS IN GHANAIAN LAW: SUPREME COURT CENTENARY PUBLICATION 1876-1976 137,151 (W. Ekow-Daniels & G. Woodman ed. 1974).

85. Elias, *Public and Private Enterprise in Nigeria*, in PUBLIC AND PRIVATE ENTERPRISES IN MIXED ECONOMIES 87 (W. Friedmann ed. 1974).

86. Robson, *supra* note 76, at 316.

87. Glentworth, *Public Enterprises in Developing Countries: Some Suggestions on Creation, Organisation and Control*, 12 J. ADMIN. OVERSEAS 190, 190 (1973).

88. E. MASON & R. ASHER, *THE WORLD BANK SINCE BRETTON WOODS* 190, 252-254 (1973).

89. R. POZEN, *supra* note 68, at 41.

science, trade and electric utility regulation.⁹⁰ Each Board is responsible for outlining its general policy, with the chief executive usually put in charge of the direction of specific corporate activities including its administration and organization.⁹¹ Tenure on the Board varies according to the method of appointment. Persons whose membership derives from their official positions in government retain membership for as long as they hold their respective government offices, while the other members are usually appointed for renewable three year terms.⁹²

The electric corporations are empowered to borrow to meet any capital expenditures necessary to discharge their functions.⁹³ It is the duty of the corporations to conduct their affairs on sound commercial lines,⁹⁴ and in particular, to set rates at levels that would ensure revenues sufficient to produce a reasonable return. Their return is measured by taking their net operating income⁹⁵ as a percentage of the fair value of their fixed assets in operation plus an appropriate allowance for working capital.⁹⁶ To determine what constitutes a reasonable return, all the pertinent economic and financial considerations are taken into account, including but not limited to the need for operating income in an amount sufficient to meet interest payments on loans, loan repayments, and funding for expansion programs. However, when the electric corporations set the rates⁹⁷ for the supply of electricity, they need the approval of the Minister before the rates go into effect.⁹⁸

Regulatory powers of the corporations encompass stipulating the general conditions for, and the supervision of, the generation and sup-

90. ECG Decree, *supra* note 31, § 3; VRDA, *supra* note 38, § 4; NEPA Decree, *supra* note 23, § 2.

91. VRDA, *supra* note 38, § 5(3); ECG Decree, *supra* note 31, § 5(3).

92. VRDA, *supra* note 38, § 5(3); ECG Decree, *supra* note 31, § 3; NEPA Decree, *supra* note 23, § 4.

93. They may charge their assets and revenues with the repayment, or issue debentures, bonds or other securities to secure the repayment of any money so borrowed. VRDA, *supra* note 38, § 22; NEPA Decree, *supra* note 23, § 17(1); ECG Decree, *supra* note 31, § 10(1).

94. VRDA, *supra* note 38, § 21(1); ECG Decree, *supra* note 31, § 11(1).

95. Section 11(3) of the ECG Decree defines "net operating operating income" as the amount of income remaining after subtracting from the total operating revenues all charges which in the normal conduct of business are proper to be charged to the revenue account, including provision for adequate maintenance and straight line depreciation of assets, but before deducting interests and other charges on borrowings. ECG Decree, *supra* note 31, § 11(3). See also NEPA Decree, *supra* note 23, § 13(2); VRDA, *supra* note 38, § 21.

96. NEPA Decree, *supra* note 23, § 13(2); VRDA, *supra* note 38, § 21.

97. ECG Decree, *supra* note 31, § 20 (2); NEPA Decree, *supra* note 23, § 42.

98. NEPA Decree, *supra* note 23, § 13 (1).

ply of electricity by both public and private bodies.⁹⁹ To protect against conflict of interest problems, the applicable statutes require disclosure by Board members of interests they may have in companies with which the corporations have business contracts.¹⁰⁰

The corporations do not operate independently of the government which exercises control through the supervisory role of the relevant Minister. Control of the corporations is facilitated by statutory provisions requiring each corporation to keep books and records of its accounts which are to be audited annually, with reports of such audits being submitted to the Government as soon as they are available.¹⁰¹ Where the situation demands, the Minister can investigate the financial and administrative activities of the corporation.¹⁰²

IV. PROBLEMS OF THE INDUSTRY

A. Management and Autonomy

Over the years, the electric industry in Ghana and Nigeria has continued to be plagued by a number of problems, some of which apply generally to public corporations in Africa,¹⁰³ while others are specific to the industry itself. The general problems relate to corrupt and inefficient management,¹⁰⁴ lack of effective government supervision,¹⁰⁵ and too much political interference from the government.¹⁰⁶

Regarding corruption, a tribunal set up to investigate the electric industry in Nigeria unearthed startling irregularities committed by the top echelons of the electricity corporation,¹⁰⁷ such as the participation by some managers in discussions of contracts in which there were clear conflicts of interest,¹⁰⁸ and the awards of favorable contracts to a number of companies¹⁰⁹ in return for kickbacks.¹¹⁰ With

99. ECG Decree, *supra* note 31, § 20.

100. Members making such disclosures are required to refrain from participating in further deliberations with the Board on the contracts in question.

101. ECG Decree, *supra* note 31, § 14(3); VRDA, *supra* note 38, § 26; NEPA Decree, *supra* note 23, § 18.

102. NEPA Decree, *supra* note 23, § 16(2).

103. J. NELLIS, *supra* note 52, at 11-66.

104. Frank, *Public and Private Enterprise in Africa*, in GOVERNMENT AND ECONOMIC DEVELOPMENT 88, 119 (G. Ranis ed. 1971).

105. Blunt, *supra* note 82, at 28.

106. D. McHenry, *The Government v. Management Controversy: Ascribing Responsibility For the Failure of a Public Corporation in Nigeria*, 4 PUB. ADMIN. & DEV. 259, 273 (1984).

107. Electricity Corporation of Nigeria Tribunal of Inquiry, Report of the Electricity Corporation of Nigeria, at 93-123 (1967) [hereinafter ECN Tribunal Report].

108. *Id.* at 101.

109. *Id.* at 102.

regard to competence, the board members of public corporations have been accused of lacking the necessary technical know-how or economic expertise to run the state enterprises effectively.¹¹¹ The absence of a skilled professional staff made this problem worse.¹¹² At certain times, too much centralization within the industry hampered coordination of affairs within the industry.¹¹³ Bad bookkeeping and accounting procedures not only threw the financial administration of the industry into disarray, but also made it impossible to set up a strong evaluation system.¹¹⁴ Frequent complaints of corrupt considerations in the making of appointments and promotions caused personnel problems which resulted in low worker morale.¹¹⁵

Even though the need for government supervision of public corporations is recognized¹¹⁶ and provided for under the statutes,¹¹⁷ such supervision has not been effectively carried out. For instance, it was envisaged that the accounts of the corporation would regularly be made available to the Minister responsible.¹¹⁸ Yet, as the Auditor-General in Ghana has observed, such reports were rarely presented within the required statutory period,¹¹⁹ thus weakening government surveillance.¹²⁰ The governments have also been unable to exercise their control through the formulation of effective guiding policies. Very few cases of formal ministerial directives on general policy have been recorded, and ministerial intervention in policy matters was generally indirect and informal.¹²¹ Informal influence on policy is undesirable as it both creates and heightens the potential for conflicts with other policies that may have been decided by management.¹²² Some formal ministerial guidance is desirable given the rather broad objec-

110. *Id.* at 107.

111. Blunt, *supra* note 82, at 38.

112. J. NELLIS, *supra* note 52, at 30.

113. This problem was so bad in Nigeria that the Chief Executive Officer of the Corporation consistently refused to take his subordinates into confidence and failed to consult with them on important government directives. ECN Tribunal Report, *supra* note 107, at 127.

114. J. NELLIS, *supra* note 52, at 41.

115. *Id.* at 132.

116. R. POZEN, *supra* note 68, at 31-32.

117. W. THORNHILL, *supra* note 13, at 20.

118. See, e.g., NEPA, *supra* note 23, § 19, and VRDA, *supra* note 38, § 26.

119. Blunt, *supra* note 82, at 28.

120. R. FLOYD, C. GRAY & P. SHORT, PUBLIC ENTERPRISE IN MIXED ECONOMIES: SOME MACRO-ECONOMIC ASPECTS 24 (1984).

121. R. POZEN, *supra* note 68, at 57.

122. Walters & Monsen, *Managing the Nationalized Companies* 25 CAL. MGT. REV. 16, 17 (1983); R. POZEN, *supra* note 68, at 56.

tives laid for corporations under the statutes. For example, an electric corporation is required to conduct its operations along sound business lines, which includes ensuring that its revenues exceed its expenditures. This statutorily mandated break-even formula is vague,¹²³ and provides no useful performance criterion for the corporation.

Although the governments may have failed to provide effective guidance, they were quite successful in intruding politically in the affairs of the corporations.¹²⁴ Through their appointive powers, the Ministers often selected persons on political grounds rather than their competence.¹²⁵ Indeed, at one time in Ghana's history, political appointments to public corporations were encouraged as a way to create jobs for party supporters.¹²⁶ Such appointees secured the political interests of ministers,¹²⁷ and condoned the use of the corporations as a cover for political party fund-raising.¹²⁸ Tribalism has also been a factor in the appointments,¹²⁹ and has had a divisive effect on the industry management. In Nigeria, a long-standing ethnic rivalry between the two most senior managers of the electric industry created a split in the management and made policy coordination within the corporation extraordinarily difficult. Only when these two people were removed was the industry injected with new life.¹³⁰

The purpose of the Minister's power over the electric industry, regarding electric tariffs and company accounts, is to check irregularities in the industry management and to review industry activities. These controls, though well-intended, have hardly been effective. First, government control over the industry's accounts cannot be expected to work in an environment where bad bookkeeping practices have prevailed. Second, government control is ineffective where the electric utilities have regularly failed to submit timely reports of its activities. In addition, control of rates has been ineffective because the government ministries are not technically equipped to evaluate the validity of the complex rate calculations on sound economic principles. Any decision a Minister made on rates was probably based on his government's calculation of the likely political effects of rate

123. Glentworth, *supra* note 87, at 197.

124. J. NELLIS, *supra* note 52, at 36.

125. R. POZEN, *supra* note 68, at 59.

126. V. RAMANADHAM, *THE NATURE OF PUBLIC ENTERPRISE* 200 (1984).

127. R. POZEN, *supra* note 68, at 59.

128. See Ministry of Information, Report of the Commission to Enquire into the Affairs of NADECO Ltd. (1966) cited in Blunt, *supra* note 82, at 33.

129. ECN Tribunal Report, *supra* note 107, at 132.

130. *Id.* at 127-30.

changes, without reference to economic justification. Governments in developing countries have tended to favor low rates in order to satisfy the population.¹³¹ The finding that rates have remained the same for periods as long as ten years in the countries of study¹³² is lamentable. The Minister's rate control power is double edged, and should be used not only to invalidate exorbitant and unjustified rate increases, but also to revise any rates that are ridiculously low.

B. Low Generating Capacity

By far, the biggest problem facing the electric industry today is its inability to generate enough power to satisfy the rapidly increasing demand brought by urbanization. Energy demand is growing at more than 5.5% in Ghana, but both the VRA and the ECG are currently unable to meet this demand.¹³³ Some deterioration is observable in the ECG's distribution system which, since 1981, has had a negative sales growth. This is largely the result of its inability to obtain the necessary equipment, spare parts, and other materials required for maintenance and expansion.¹³⁴ Current supply problems in the VRA stem from factors apparently beyond its control. One factor is that the prolonged drought affecting the Sahelian region of West Africa has drastically reduced the water flows into the Volta lake, the main storage reservoir for the Volta dam, compelling the VRA to cut down on the energy output of the dam. In Nigeria, where the growth of electric consumption is about 20% a year,¹³⁵ the industry's paralysis is attributed to the frequent breakdown of its units.¹³⁶ The continuing technological advances in the industry make it difficult to obtain the much needed spare parts to repair and maintain existing units because the industry's main emphasis is on producing newer models, thus making older equipment of the industry obsolete. To add insult to injury, acts of sabotage are frequently mounted against the industry as certain unscrupulous persons continue to steal nuts, bolts, and galvanized steel from transmission line towers at an alarming rate.¹³⁷ Such unfortunate acts persist because the stolen items often fetch very lu-

131. J. TENDLER, *ELECTRIC POWER IN BRAZIL, ENTREPRENEURSHIP IN THE PUBLIC SECTOR* 58 (1968).

132. ECN Tribunal Report, *supra* note 107, at 82.

133. GHANA COMMERCIAL BANK, Q. ECON. REV., Oct.-Dec. 1979, at 3.

134. INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT, *supra* note 50.

135. West Africa, Nov. 3, 1986, at 2300-01.

136. ECN Tribunal Report, *supra* note 107, at 46.

137. West Africa, Nov. 3, 1986, at 2302.

crative prices in the market.¹³⁸

Compounding the industry's problem of generating capacity is the absence of adequate statistics on housing and residential plans which hinders any reasonable forecast of energy demand.¹³⁹ This problem is made worse by the lack of trained staff to carry out market surveys on load growth.¹⁴⁰ Consumers are in a way to be blamed for this too, as they have failed to provide the electric industry with advance information about their industrial power requirements so that adequate planning could be carried out. The prevalence of illegal tapping of electricity, often with the connivance of the industry's employees,¹⁴¹ taxes existing facilities and further reduces the reliability and quality of electricity supply.

Clearly, the electric industry is in a state of crisis. Indeed, the quality of electric supply in both countries has been so poor that many industries have now resorted to operating more or less permanently on their own private generating plants.¹⁴² This unenviable situation has created a big image problem. The rampant power failures and low voltage supplies of electricity have provoked public outrage against the management of the electric industry, making it the object of ridicule. It is therefore not surprising that some officials go to such lengths to avoid being publicly associated with the industry!¹⁴³

C. Capital Expansion

The electric industry urgently needs capital investment to rehabilitate its distribution system, provide the equipment needed to restore operating efficiency, overcome suppressed demand and meet future demand growth as it arises. Private investment has not been forthcoming as potential investors continue to be deterred by the uncertain and low returns available when rates are kept low. The presence of inflation and devaluation further aggravates the problem because they induce unanticipated increases in the industry's costs. In addition, the use of devaluation of national currency as a method of correcting the balance of payments deficit¹⁴⁴ increases the local currency costs for the foreign exchange that the industry needs to pay for °

138. *Id.*

139. ECN Tribunal Report, *supra* note 107, at 46.

140. *Id.*

141. West Africa, Nov. 3, 1986, at 2300-01.

142. *Id.*

143. *Id.*

144. For example, in March 1985, Ghana carried out one of the most massive devaluations

imported fuel and equipment, and to make loan payments to its international financiers. Given that the regulatory framework in these countries does not permit prompt increases of prices to reflect these unforeseen costs,¹⁴⁵ the industry's revenue is correspondingly reduced.

So far, international agencies have been the main sources of capital for expansion.¹⁴⁶ But this has been inadequate as these institutions provide capital for foreign expenditures and not for locally incurred costs, which can sometimes amount to more than half the cost of an electric installation.¹⁴⁷ Considering the demands made on the resources of the international financial institutions, it is not even realistic to expect them to finance the whole cost of expansion, and so a part of this cost must be borne by the industry and the government. The reported losses or very marginal profits of the industry¹⁴⁸ have left very little money for expansion after the necessary loans and interest payments have been met. Faced with legitimate and competing demands from other sectors of the economy, the governments have been unable to adequately finance the expansion of the industry,¹⁴⁹ leading to delays in the industry's expansion program.¹⁵⁰ For example, the Government of Nigeria took five years to authorize the necessary foreign exchange transfer for the purchase of spare parts to repair broken equipment!¹⁵¹ Therefore, the big difficulty continues to be that of finding sufficient capital to finance development projects.

D. The Rate Problem

Capital expansion would be enhanced by the correction of deficiencies in the existing tariff structures in both countries. Electricity

of its currency, from US\$ 1=c2.75, to US\$ 1=c50. GHANA COMMERCIAL BANK, Q. ECON. REV., Jan.-Mar. 1985, at 2-3.

145. As proposals for rate increases must await the consent of the Minister, there could be a regulatory lag if the Minister takes a long time to approve them.

146. The Government of Ghana has obtained financial commitments from the World Bank, the International Development Agency, the Commonwealth Development Agency, and the European Investment Bank, for an expansion of the industry in the northern parts of the country. See West Africa, Nov. 10, 1986, at 2379.

147. D. CAVERS & J. NELSON, *ELECTRIC POWER REGULATION IN LATIN AMERICA* 2 (1959).

148. In 1983 for example, the Volta River Authority announced a net loss of 290,003,000 cedis (about \$9,666,700), which represented a negative rate return of 3.41% in the Government's average equity. See VOLTA RIVER AUTHORITY, *supra* note 47, at 12.

149. West Africa, Nov. 3, 1986, at 2301-02.

150. ECN Tribunal Report, *supra* note 107, at 46.

151. West Africa, Nov. 3, 1986, at 2301-02.

has frequently been sold at well below the cost of production. For example, for some time until the irregularity was corrected in 1981, the Electricity Corporation of Ghana consistently bought power from the VRA at 7.54p per kilowatt hour and sold it for a loss to domestic customers at 6.2p per kilowatt hour.¹⁵² As compared to other countries, rates in Ghana and Nigeria are not only low, but have remained the same for several years, despite a rise in the cost of living and an increase in operating costs.¹⁵³ Low rates have probably been sustained on the assumption that they will stimulate increased use of excess capacity and bring about lower average costs. But given that the present capacity of the industry is already overburdened, that objective is no longer tenable for either country. Indeed, in times of inflation and devaluation, the revenues yielded by such low rates will continue to fall short of the cost of service, resulting only in further losses for the industry.¹⁵⁴

This calls for a critical review of the factors used in establishing rates for the industry.¹⁵⁵ The revenue requirement, the basic standard of rate regulation, generally allows the electric industry to set rates which will not only cover its operating costs, but will provide a rate of return¹⁵⁶ sufficient to maintain its financial credit, and also attract capital to cover replacement and expansion costs. Looking at the brief provisions on rate regulation in Ghana¹⁵⁷ and Nigeria¹⁵⁸ it can be seen that they are quite unambiguous in their intent that the electric corporations meet this revenue requirement. There are two major components of the revenue standard: the rate level, and the rate structure. Determining the rate level involves first ascertaining a rate base, which is the value of the utility's property. Second, the portion of the utility's gross revenues that can be considered as its return after making appropriate deductions for operating expenses, depreciation

152. See GHANA COMMERCIAL BANK, Q. ECON. REV., Jan.-Dec. 1981.

153. ECN Tribunal Report, *supra* note 107, at 87.

154. See *supra* notes 144-45 and accompanying text.

155. A discussion of the various factors affecting rate determination can be found in United Nations, Electricity Costs and Tariffs, A General Study (Prepared by the Resources and Transport Division of the Department of Economic and Social Affairs, UN Secretariat, New York: UN 1972). See also, M. MUNASINGHE, ELECTRIC POWER POLICY (1979).

156. C. PHILIPS, THE REGULATION OF PUBLIC UTILITIES: THEORY AND PRACTICE 157 (1984).

157. VRDA, *supra* note 38, § 21 provides: "It shall be the duty of the Authority to conduct its affairs on sound commercial lines, in particular to carry out its functions under this Act as to ensure that taking one year with another, its revenues are greater than its outgoings properly chargeable to revenue account."

158. NEPA Decree, *supra* note 23, § 13.

and taxes must be found. Finally, the percentage of net revenue that the utility should be permitted to make on its property investment must be calculated.¹⁵⁹

Two popular methods of determining the rate base in West Africa are the original and reproduction cost methods;¹⁶⁰ the former values properties at their acquisition cost at the time they were used, while the latter estimates the present value of the same properties.¹⁶¹ The original cost method is attractive because it not only provides a fixed rate base, but by not being influenced by price changes also results in stable rates in the electric industry. However, although stable rates are advantageous for consumers, they cannot be considered healthy for the electric industry under conditions of inflation and devaluation. Therefore, use of the original cost method under these circumstances has not been helpful. The reproduction cost method is preferable as it allows realistic adjustments to be made in the property of the corporation to reflect the rising prices of goods and services.¹⁶²

Operating expenses that should be deducted in setting the rate level include costs of fuel, wages, salaries, maintenance, advertising, and research. Experience has been that the ratio of such expenses to the income projected in establishing the general level of the utility's electric rate has actually been exceeded, thus reducing the projected return of the industry.¹⁶³ This has been particularly evident during periods of regulatory lag where the responsible Minister has taken a long time to approve rate increases.

Another important deduction involves accrued depreciation cost. Such deduction is necessary in order to recover, through revenues, the costs invested in the property used in the production of revenue.¹⁶⁴ Accrued depreciation, in this sense, amounts to a charge to customers as a cost of the service they receive.¹⁶⁵ One significant point is that the industry's depreciation policy has often been conservative. For

159. These procedures for determining the rate level may conveniently be expressed in the formula: $R = 0 + (V-D)r$, where R represents total revenue required, 0 represents operating costs, V represents the gross value of the property used in production, D represents the accrued depreciation on such property and finally, r represents the allowed rate of return. C. PHILIPS, *supra* note 156, at 158.

160. See eg., VOLTA RIVER AUTHORITY, *supra* note 47, at 48-49.

161. M. FARRIS & R. SAMPSON, PUBLIC UTILITIES 83 (1973).

162. *Id.* at 85.

163. D. CAVERS & J. NELSON, *supra* note 147, at 124.

164. M. FARRIS & R. SAMPSON, *supra* note 161, at 109-11; C. PHILIPS, *supra* note 156, at 251.

165. C. PHILIPS, *supra* note 156, at 251.

example, in Nigeria, rates were fixed in such a way that the assets had a shorter book-life span than experience actually showed them to have.¹⁶⁶ In this manner, depreciation was used to ensure, quite unfairly, compulsory savings from present consumers to build up an electric supply for future consumers.

The second major aspect of rate regulation is the determination of the utility's rate structure which involves establishing specific rates that particular customers are to be charged. Since electric industries have varying degrees of monopoly power in the market area they serve, the wisdom of establishing different rate structures for different classes cannot be disputed.¹⁶⁷ Such price discrimination in the industry is particularly justified when it is based on costs.¹⁶⁸ For example, when compared to residential users, lower prices are charged in large industrial sales because it costs much less to provide service since little of the industry's distribution is used. However, discrimination occurs when rates are based on differences in demand, because some consumers would be paying more than the cost of a particular service while others pay less.¹⁶⁹ There have been cases in West Africa where similar cost structures have charged use of electricity at different rates.¹⁷⁰ Though discrimination may sometimes serve the useful function of extending service to a greater number of customers, especially under conditions of decreasing costs,¹⁷¹ it cannot be justified during periods of rising costs, because giving improper price signals fails to promote economic efficiency during these periods.

Conspicuously absent from the statutes is any provision for consumer participation in the determination of rates.¹⁷² The statutes only require the submission of rates and scales for the approval of the appropriate minister.¹⁷³ Similarly, the statutes do not fashion a clear procedure for review of disagreements about rates. Angered by the adverse impact of rates announced by the Electricity Corporation, the

166. *Id.*

167. *Id.* at 404.

168. *Id.* at 380-88.

169. *Id.* at 384. In opposition to this, it may be argued that social reasons justify special rates to the less wealthy.

170. United Nations, *Electricity Costs and Tariffs*, *supra* note 155, at 92.

171. This is because marginal pricing would only result in losses. C. PHILIPS, *supra* note 156, at 387.

172. In the case of Ghana, Valco, as the largest consumer of electricity generated by the VRA, is represented on the Board of the VRA. But this is clearly a case of discrimination among consumers since the rest of Ghanaian consumers are unrepresented.

173. *See, e.g.*, § 13 (1) of the NEPA Decree, *supra* note 23.

Corn Millers Association of Lagos sought relief and vacillated between the courts and the Ministry of Mines and Power.¹⁷⁴ The tribunal investigating the electric industry finally heard the case mainly because the Permanent Secretary of the Ministry of Mines and Power, to whom they had appealed, was sympathetic to their complaint.¹⁷⁵ The result may have been different if the Permanent Secretary was not so sympathetic. Leaving legitimate challenges about rate levels to the whims and caprices of either the Minister or his Permanent Secretary can cause injustice. Any group of consumers aggrieved about such rates should be able to bring an action before a review board for a determination of its grievance. Challenges about rates should in this way be accorded to individual customers and not left to the sole discretion of the minister.

V. PROPOSALS FOR REFORM

The discussion in the preceding section has raised some questions about the validity of the arguments made in favor of public corporations adopted and operated by African governments. Hopes of obtaining an effective management under the public corporate structure have not materialized given the reported levels of corruption and inefficiency. Public enterprise has not met its goal of autonomy as governments have interfered politically in running the corporations. Also, the electric industry, being minimally supported by government, continues to suffer from finance problems. The frequent breakdown of electric production, and the low generating capacity combine to constitute a sad commentary on the public corporations' obligation to provide high quality services. Besides, the inequities in tariff structures belie the way corporations take consumer interests into account when deciding rates. Clearly, the government needs to reform the way it has run the electric industry. This section aims to outline some proposals for remedying those defects.

A. *Public v. Private Ownership*

Considering the level of dissatisfaction with the operation of public enterprise, it is not surprising that there are calls to privatize public corporations.¹⁷⁶ In Britain, where the call for privatization has gath-

174. ECN Tribunal Report, *supra* note 107, at 90.

175. *Id.*

176. Arguments have been made for divestiture of public corporations in the conviction

ered momentum since the late 1970s,¹⁷⁷ the validity of the original economic and social arguments in support of nationalization has been seriously questioned. Critics of nationalization have argued that a public sector monopoly may be even more detrimental to public interest than a private sector monopoly,¹⁷⁸ and given that the investment plans of nationalized industries cannot be changed on short notice, it has proved infeasible to use them as instruments of economic planning.¹⁷⁹ Besides, nationalization has not yielded the much expected improvement in industrial relations,¹⁸⁰ and available evidence can rebut the claim about the inability of private resources to meet the capital needs of a rapidly expanding industry.¹⁸¹

In examining the relative performance of private and public enterprise in the electric industry in the United States, private enterprise has scored some significant successes.¹⁸² Comparing public and private enterprise on the basis of technical competence and protection of consumer interests, Sporn presents a strong case for private involvement in the electric industry in the United States.¹⁸³ However, it would be erroneous to apply his findings to Africa, where the respective national economies are in relatively early stages of economic growth as contrasted with the United States' relatively mature economy. It would be inappropriate to adopt the African nations' statutory criteria in the United States' and Britain because both of these countries have sufficient capital for long term investment at fixed rates

that internal reforms will make no impact on the chronic problems of the corporations. J. NELLIS, *supra* note 52, at 43-44.

177. See generally PRIVATIZATION? (S. Hastings & H. Levie ed. 1983); P. CURWEN, *supra* note 57, at 157-285; Heald & Steel, *The Privatization of U.K. Public Enterprises*, 52 ANNALS PUB. COOPERATIVE ECON. 351 (1981).

178. J. NELLIS, *supra* note 52, at 44.

179. W. THORNHILL, *supra* note 13, at 12. Taking away the incentive of profits under public enterprise has merely resulted in inefficiencies in the nationalized industries which appear to affect the consumers more adversely than the capitalist profit. The regulatory framework under private enterprise limits the ability of private companies to exploit the consumer, and profits come to the companies only if the consumers are satisfied with the goods and services. This contrasts with the situation under the nationalized industries, which do not have as much incentive to satisfy consumer needs or provide adequate service. P. CURWEN, *supra* note 57, at 159.

180. P. CURWEN, *supra* note 57, at 60.

181. The \$440 million project undertaken by the Ohio Valley Electric Corporation stands as a graphic illustration of the levels that private enterprise can reach in investing in the electric industry. It is significant also that private United States electric companies augment their capacity at the rate of 20 million kilowatt hours a year. See P. SPORN, *THE SOCIAL GOAL OF ELECTRIC POWER SUPPLY IN MODERN SOCIETIES* 32 (1971).

182. See generally, *id.*

183. *Id.* at 37-97.

of return in private securities. Developing countries instead have limited amounts of such investment, and their capital markets are poorly developed.¹⁸⁴ The fact that African nations are basically capital importing, whereas the United States is capital exporting, must be kept in mind in comparing African nations to the United States. Also, in contrast to the United States' industry which is one of low risk stemming from highly stable earnings,¹⁸⁵ the African electric industry is faced with unstable costs making it a high risk relative to return. Therefore, some form of government intervention offers the best hope for the electric utilities in Africa.

Lest the problems described above be interpreted as a failure of the public corporate concept, it is the view of the writer that managerial autonomy and some executive control in the limited form of principles governing the organization of public corporations are sound, and should be retained. Problems in the manner the corporations have so far been run should be indicative only of poor implementation of the concept.¹⁸⁶ Ways of overcoming the present problems in the running of the public corporations are given below, and it is hoped that when profits reach levels that will attract private enterprise, African governments would then invite some form of private participation in the industry.

B. *Management and Autonomy*

One of the major issues to be tackled by way of reform in the electric industry is the problem of management. In this context, continuous manpower planning and training programs need to be maintained so as to provide an adequate supply of skilled staff to meet the demands of the industry.¹⁸⁷ Special research centers could be established in the universities and polytechnics to cater to the needs of the industry. Also, development-oriented refresher courses need to be organized for the upper management in order to produce managers who have a keen sense of the development objectives of the country, and who will run the industry to fit those objectives even in the absence of

184. Heath, *Public Enterprises in the U.K.: Relevant Experiences for the Developing Countries*, in PUBLIC ENTERPRISE AND THE DEVELOPING WORLD 109, 110 (V. Ramanadham ed. 1984).

185. D. CAVERS & J. NELSON, *supra* note 147, at 6.

186. Blunt, *supra* note 82, at 34.

187. Hope, *Improving Public Enterprise Management in Developing Countries*, in JOURNAL OF GENERAL MANAGEMENT 71, 81 (1982).

explicit guidance by the government.¹⁸⁸ Centralization is a problem of the industry that should also be dealt with. Decentralization is necessary to improve communications and the level of coordination within and among the departments in the industry.¹⁸⁹ With such effective coordination and communication, the management will have better control over the industry and will ensure the effective implementation of sound economic policies.

While a degree of autonomy has been granted to management, the governments have nevertheless set controls to make the industry publicly accountable through responsible Ministers.¹⁹⁰ However, the evidence suggests that this government control has been grossly abused with Ministers using their influence on top management to satisfy their political and personal interests.¹⁹¹ Steps should be taken to curtail this abuse. A welcome suggestion has been made that Ministers should submit government directives to the corporation in writing.¹⁹² The possibility that such directives would be open to public scrutiny would certainly keep Ministers from the flagrant political intrusions they make in running public enterprises such as the electric industry.

An independent commission should also be established with powers of review over the activities of the electric corporations. This commission would insulate the industry and consumers from exposure to the political interests of the party in power.¹⁹³ It would weaken the heavily centralized control system which works to the narrow political advantage of the Minister.¹⁹⁴ In addition, the commission should be given final review powers over any rates determined by the electric industry, and in its reviews should be guided by sound principles of rate regulation, taking into account existing economic conditions affecting the industry. Needless to say, members of the commission should be of proven ability in electric utility regulation, with knowledge of important subjects such as economics, finance, engineering and administration. The commission should also be empowered to review company accounts and investigate any improprieties in the general management of the industry. One urgent

188. *Id.* at 82.

189. *Id.* at 83.

190. *Supra* notes 83-102 and accompanying text.

191. Blunt, *supra* note 82, at 33.

192. Glentworth, *supra* note 87, at 203.

193. V. RAMANADHAM, *supra* note 126, at 200.

194. R. FLOYD, C. GRAY & P. SHORT, *supra* note 120, at 10.

task of such a commission would be to ensure that proper accounting principles are followed by the industry. The importance of close supervision of the industry's operating expenses¹⁹⁵ cannot be overemphasized since management has indulged in wasteful expenditure.¹⁹⁶

Furthermore, the existence of a consumer council can protect consumers from abuses perpetuated by the industry and ensure that the industry performs its legal obligations and, in particular, provides high quality service.¹⁹⁷ It should be part of the duties of such a council to participate in public hearings called by the independent commission, as well as provide support to aggrieved consumers challenging rates set by the industry. The powers of such a commission should be clearly spelled out so that they do not unnecessarily intrude upon managerial autonomy. Where there are irresolvable difficulties between management and the consumer council, review of such stalemates should be made by the independent commission.

C. Rate Policy

Present shortcomings in the implementation of the principles surrounding the revenue standard must be remedied if the industry is to have a viable rate policy. In the determination of the rate base for example, the reproduction cost method should be adopted because it more accurately reflects current conditions. To guard against the problem of regulatory lag, the industry should be allowed to devise a scheme where it can promptly escalate its rates to match increases in operating expenses, pending confirmation by the commission.¹⁹⁸ Although the automatic nature of these adjustments may be criticized,¹⁹⁹ it still provides the surest way of overcoming problems caused by regulatory lag. Fear of excesses by the industry should be allayed by the fact that the proposed commission would be empow-

195. C. PHILIPS, *supra* note 156, at 230.

196. ECN Tribunal Report, *supra* note 107, at 93-137.

197. In 1975 the Labour Government in Britain set up the National Consumer Council to look into arrangements for consumer representation in the nationalized industries. The Council concluded favorably on such matters as organizing the strength of the gas and electricity consumers on a national level, amending procedural rules on prices. The amendments allowed a great deal of consumer influence and the appointment of a consumer council chairmen to the Boards of the electricity industry. See Tivey, *Structure and Politics in the Nationalized Industries*, 32 PARLIAMENTARY AFF. 159, 161 (1979). A historical sketch on the creation of consumer councils in Britain is found in R. KELF-COHEN, *supra* note 59, at 211-28.

198. R. KELF-COHEN, *supra* note 59, at 211-28.

199. *Id.* at 150.

ered to scrutinize the new rates on their merits after they have been set by the electric corporation.

In addition to rate scrutiny, more current depreciation policies need to be implemented. For example, in estimating the value of the assets for depreciation accounting, it is suggested that the reproduction rather than the original cost method be adopted. Significantly, the electric industries have received capital investment from financial institutions, repayable in dollars. When devaluation occurs, and the value of the national currency therefore depreciates, an expense is incurred which the investors could not have foreseen at the last rate determination. Clearly, if a rate increase is not allowed to compensate for this cost, the projected return of the electric industry would be reduced. Therefore, it is the suggestion here that the electric industry be allowed to make appropriate adjustments for foreign exchange costs during periods of devaluation.

VI. CONCLUSIONS

This Article has traced the problems of the industry to poor management, unhealthy political interference in the running of the industry, insufficient capital for expansion and a faulty rate policy, which is not only discriminatory in structure, but is deliberately kept at the same low levels despite changing economic conditions. Improved training of managers and further decentralization within the industry is a way of assuring an effective management. The creation of independent commissions to review the activities of electricity corporations would go a long way in reducing the intrusions made by government Ministers, while consumer councils would keep policy makers within the industry accurately informed of consumer interests. The proposals also call for flexibility in determining rate levels to reflect cost increases, as well as a careful review of the rate structures to eliminate uneconomic and discriminatory structures. If these revisions are carried out to ensure that the revenue earned adequately meets the fluctuating costs of service, the industry will be on its way to recovery. Conceding that the inevitable rate increases will be unpopular, but they will, in the long run, benefit the industry, make it self-supporting, and result in better services for the consumer.